

CLAIMS

1. High production rate machine for personalization (2) of integrated circuit modules ($51_0, \dots, 51_n$) fitted on a film ribbon (5) characterized in that it comprises:

- a rotating personalization wheel against which the film ribbon is in contact;

5 - means for establishing a communication with the integrated circuit (51) on at least one portion of the rotating personalization wheel (1), and

- means for positioning and driving (61, 62, 63, 64, 65) the film ribbon (5) synchronously with the rotation of the personalization wheel (1).

10 2. Machine according to claim 1, characterized in that the ribbon (5) driving and positioning means (61, 62, 63, 64, 65) consist of two pin wheels (61, 62) and a contact belt (65) surrounding at least the rotating personalization wheel (1).

15 3. Machine according to claim 1 or 2, characterized in that the personalization wheel (1) is polygonal.

4. Machine according to claim 1 or 2, characterized in that the means for establishing a communication with the integrated circuit (51) are formed
20 when the film ribbon (5) comprises a contact area (52) setting up connections between a part of the surface of the film and the integrated circuit (51) by contact pins, or when the film ribbon (5) comprises one or more antennas on one of its faces (52), capable of establishing a communication with the integrated circuit (51) through one or more antennas formed in the
25 connection head (11) placed in said portion of the personalization wheel (1).

5. Machine according to claim 4, characterized in that the personalization wheel (1) comprises one or more communication heads ($11_0, \dots, 11_n$) placed at regular intervals on the personalization wheel (1), the distance between
30 the communication heads corresponding to the distance between the

communication means made on the film ribbon (5) and associated with two different integrated circuits (51_n).

5 6. Machine according to claim 4 or 5, characterized in that the personalization wheel (1) can be extracted so as to quickly match the typology of the film (5) or the pitch between the modules containing integrated circuits (51).

10 7. Machine according to claim 4 or 5, characterized in that the machine comprises electronic cards (21) connected through a link adapted to connection heads (11₀,..., 11_n).

15 8. Machine according to one of claims 4 to 7, characterized in that the connection heads (11₀,..., 11_n) are hybrid connection heads.

9. Machine according to one of claims 4 to 7, characterized in that the connection heads (11₀,..., 11_n) are of the contact type.

20 10. Machine according to one of claims 4 to 7, characterized in that the connection heads (11₀,..., 11_n) are of the no-contact type.

25 11. Machine according to one of claims 4 to 7, characterized in that the personalization wheel (1) comprises an eccentric fixed cam free to rotate about the drum.

12. Machine according to one of claims 4 to 11, characterized in that the connection heads (11₀,..., 11_n) are mounted on assemblies mobile in the radial direction.

30 13. Machine according to one of claims 4 to 12, characterized in that the connection heads (11₀,..., 11_n) are retracted during the period in which there is no contact and remain retracted until contact is made again.

14. Machine according to one of claims 7 to 13, characterized in that each electronic card is connected through an interface to a rotating connector and through a serial communication link to a computer managing all personalizations, sending personalization parameters towards each module and the production process on the output side of personalization as a function of tests carried out during personalization to determine whether the personalized module can be used or should be scrapped.

15. Machine according to one of claims 1 to 14, characterized in that the machine includes a test card (22) to test each personalized module at the end of the personalization cycle, to determine whether the personalized module can be used or should be scrapped.

16. Process for manufacturing cards containing an integrated circuit module including a high production rate machine (1) for making integrated circuits ($51_0, \dots, 51_n$) according to one of the above claims, followed by a station (40) for cutting out modules containing integrated circuits and a station for routing modules to a station (42) for inserting modules in plastic cards (7) provided with a module insertion recess.

17. Process according to claim 16, characterized in that the cut out module (50) is sent towards a scrap station (44).

18. Process according to claim 16 or 17, characterized in that the production line for plastic cards comprises a step for personalizing (43) the plastic by etching or embossing or printing personalization information ($71_0, \dots, 71_n$) corresponding to personalization information defined in one of the integrated circuits ($51_0, \dots, 51_n$), a step for identifying the integrated circuit comprising determined personalization information and a step for determining the personalization to be made on the plastic as a function of progress of the module containing the integrated circuit so that the integrated circuit is inserted in the plastic containing the corresponding personalization.

19. Process according to claim 18, characterized in that it comprises the plastic personalization step (43) after insertion (42) of the personalized module into the plastic (7).